Dictionary Practice sheet

**Level - 1 (13 Questions)**

**Note:** Dictionary for all the level – 1 questions,

student\_grade = {'Alice': 85, 'Bob': 90, 'Charlie': 78}

Q1: Write a Python program to create a dictionary named student\_grades with the following key-value pairs: 'Alice': 85, 'Bob': 90, 'Charlie': 78 and also print the dictionary.

Q2: Write a Python program to access and print the grade of 'Bob' from the given dictionary.

Sample Output: 90

Q3: Write a Python program to add a new student 'David' with a grade of 92 to the given dictionary and print it.

Output: {'Alice': 85, 'Bob': 90, 'Charlie': 78, 'David': 92}

Q4: Write a Python program to update the grade of 'Charlie' to 80 in the given dictionary and print the dictionary.

Output: {'Alice': 85, 'Bob': 90, 'Charlie': 80, 'David': 92}

Q5: Write a Python program to delete the student 'David' from the given dictionary using the del keyword, also print the updated dictionary.

Output: {'Alice': 85, 'Bob': 90, 'Charlie': 80}

Q6: Write a Python program to check if the key 'Eve' is present in the given dictionary, if not then print “Eve is not present in the dictionary”.

Q7: Write a Python program to print all the student names in the given dictionary.

Output:

Alice

Bob

Charlie

Q8: Write a Python program to print all the grades in the given dictionary.

Output:

85

90

80

Q9: Write a Python program to print all key-value pairs in the given dictionary in the format “Student: Grade”.

Output:

Alice: 85

Bob: 90

Charlie: 80

Q10: Write a Python program to clear all elements from the given dictionary.

Q11. Write a python program to count, how many key-value pairs are present in the dictionary by traversing on the given dictionary.

student\_grade = {'Alice': 85, 'Bob': 90, 'Charlie': 78}

Q12.  Write a Python program to check if a dictionary is empty or not.

D = {}

Output: True

Q13. Write a Python program to access dictionary key's element by index (user input).

student\_grade = {'Alice': 85, 'Bob': 90, 'Charlie': 78}

Sample Input: 2

Expected Output: bob

**Level – 2 (17 Questions)**

**Note:** Dictionary for 11-16 question numbers,

fruit\_prices = {'apple': 30, 'banana': 10, 'cherry': 25}

Q14: Write a Python program to create a dictionary named fruit\_prices using the dict() constructor with the following key-value pairs: 'apple': 30, 'banana': 10, 'cherry': 25 and print the dictionary.

Q15: Write a Python program to update the price of 'apple' to 35 and 'banana' to 12 in the given dictionary.

Output: {'apple': 35, 'banana': 12, 'cherry': 25}

Q16: Write a Python program to delete the key 'cherry' from the given dictionary and print the updated dictionary and removed value.

Output: {'apple': 35, 'banana': 12}

25

Q17: Write a Python program to remove the last key-value pair from the given dictionary and print the removed pair.

Output: ('banana', 12)

Q18: Write a Python program to check if the key 'grape' is not present in the fruit\_prices dictionary, if not then add ‘grape’ with value 30 and print the updated dictionary.

Q19: Write a Python program to create a shallow copy of the given dictionary and name it copied\_prices and print both dictionaries.

Q20: Write a Python program to create a dictionary named squares where the keys are numbers from 1 to 5, and the values are their squares.

Output: {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}

Q21: Write a Python program to create a dictionary named student\_info that contains two dictionaries: one for 'Alice' with 'age': 20 and 'grade': 'A', and one for 'Bob' with 'age': 22 and 'grade': 'B' and print the dictionary.

Q22: Write a Python program to merge the given dictionary with another dictionary containing the information 'Charlie': {'age': 23, 'grade': 'C'}.

student\_info = {'Alice': {'age': 20, 'grade': 'A'}, 'Bob': {'age': 22, 'grade': 'B'}}

Output: {'Alice': {'age': 20, 'grade': 'A'}, 'Bob': {'age': 22, 'grade': 'B'}, 'Charlie': {'age': 23, 'grade': 'C'}}

Q23: Write a Python program to check if 'Alice' is a key in the given dictionary and if 'A' is a grade in Alice's information.

student\_info = {'Alice': {'age': 20, 'grade': 'A'}, 'Bob': {'age': 22, 'grade': 'B'}}

Output:

True

True

Q24. Write a python program which finds the sum of all the values inside the given dictionary.

dict  **=** {'a': 300, 'b': 200, 'c': 400}

Output: 900

Q25. Write a python program which find the average of values of given dictionary.

Dict1 **=** {'a': 100, 'b': 200, 'c': 300}

Output: 200

Q26. Write a python program which convert given dictionary to list of lists.

Dict\_1 = {'python': [1, 3, 4], 'for': [7, 6], 'Data\_Scicence': [4, 5]}

Output: [['python', 1, 3, 4], ['for', 7, 6], ['Data\_Science', 4, 5]]

Q27: Write a Python program to create a dictionary named even\_squares that contains squares of even numbers between 1 and 10 using dictionary comprehension.

Output: {2: 4, 4: 16, 6: 36, 8: 64, 10: 100}

Q28: Write a Python program to count the frequency of each character in the string 'banana' and store it in a dictionary.

Output: {'b': 1, 'a': 3, 'n': 2}

Q29: Write a Python program to reverse the key-value pairs in the given dictionary (i.e., keys become values and values become keys), then print the reversed dictionary.

student\_info = {'Alice': 85, 'Bob': 90, 'Charlie': 80}

Output: {85: 'Alice', 90: 'Bob', 80: 'Charlie'}

Q30: Write a Python program to remove all key-value pairs from a dictionary fruit\_prices where the value is less than 20.

fruit\_prices = {'apple': 30, 'banana': 10, 'cherry': 25, 'mango': 5}

Output: {'apple': 35, 'cherry': 25}

Q31: Write a Python program to create an OrderedDict from the fruit\_prices dictionary and demonstrate that it maintains the insertion order when adding a new element 'grape': 40.

Output: OrderedDict([('apple', 35), ('cherry', 25), ('grape', 40)])

**Level - 3 (23 Questions)**

Q32: Write a Python program to create a dictionary letter\_count where the keys are letters from 'a' to 'd' and the values are the ASCII codes of those letters.

Output: {'a': 97, 'b': 98, 'c': 99, 'd': 100}

Q33. Write a Python script to sort (descending) a given dictionary by key and print the sorted dictionary.

Original\_dict = {1: 10, 2: 20, 4: 40, 3:30, 9: 90, 6: 60}

Output: {9: 90, 6: 60, 4: 40, 3: 30, 2: 20, 1: 10}

Q34. Write a Python program to get the maximum and minimum values of the given dictionary.

my\_dict = {'x': 500, 'y': 5874, 'z': 560}

Output: Maximum Value: 5874

Minimum Value: 500

Q35. Write a Python program to remove duplicates from the given dictionary.

Dict\_1 = {1: 10, 2: 20, 1: 10, 4: 40, 3:30, 9: 90, 4: 40, 6: 60, 6: 60}

Output: {1: 10, 2: 20, 4: 40, 3:30, 9: 90, 6: 60}

Q36. Write a Python program to combine two dictionaries by adding values for corresponding keys.  
 d1 = {'a': 100, 'b': 200, 'c':300}

d2 = {'a': 300, 'b': 200, 'c':400}

Output: {'a': 400, 'b': 400, 'c': 700}

Q37. Write a python program which return the key of highest value in the given dictionary.

my\_dict = {'a': 500, 'b': 5874, 'c': 560, 'd': 400, 'e': 584, 'f': 20}

Output: b

Q38. Write a Python program to get the top three items in a shop.  
Sample data: {'item1': 45.50, 'item2':35, 'item3': 41.30, 'item4':55, 'item5': 24}

Output:  
item4 55  
item1 45.5  
item3 41.3

Q39. Write a Python program to get the key, value and item in a dictionary.

dict\_num = {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

Output:

1 10 1

2 20 2

3 30 3

4 40 4

5 50 5

6 60 6

Q40. Write a Python program to print a dictionary line by line.

students = {'Aex': {'class': 'V', 'roll\_id': 2}, 'Puja': {'class': 'V', 'roll\_id': 3}}

Output:

Aex

class: V

rolld\_id: 2

Puja

class: V

roll\_id: 3

Q41. Write a Python program to count the number of items in a given dictionary value that is a list.

dict = {'Alex': ['subj1', 'subj2', 'subj3'], 'David': ['subj1', 'subj2']}

Output: 5

Q42. Write a Python program to replace dictionary values with their sums and then print the dictionary.

my\_dict = {'a': 500, 'b': 5874, 'c': 560, 'd': 400, 'e': 584, 'f': 20}

Output: {'a': 7938, 'b': 7938, 'c': 7938, 'd': 7938, 'e': 7938, 'f': 7938}

Q43. Write a Python program to match key values in two dictionaries.

X = {'key1': 1, 'key2': 3, 'key3': 2}

Y = {'key1': 1, 'key2': 2}  
Expected output: key1: 1 is present in both X and Y

Q44. Write a Python program to create a dictionary of keys x, y, and z where each key has as value a list from 11-20, 21-30, and 31-40 respectively. delete the fifth value of each key from the dictionary and print them.

Output: 15

25

35

Q45. Write a Python program to drop empty items from a given dictionary.

D = {'c1': 'Red', 'c2': 'Green', 'c3': None}  
 Output: {'c1': 'Red', 'c2': 'Green'}

Q46. Write a Python program to convert more than one list to a nested dictionary.

        Given lists:

        ['S001', 'S002', 'S003', 'S004']

        ['Adina Park', 'Leyton Marsh', 'Duncan Boyle', 'Saim Richards']

        [85, 98, 89, 92]

        Nested dictionary (Output):

[{'S001': {'Adina Park': 85}}, {'S002': {'Leyton Marsh': 98}}, {'S003': {'Duncan Boyle': 89}}, {'S004': {'Saim Richards': 92}}]

Q47.  Write a Python program to filter the height and width of students, which are stored in a given dictionary in such a way that Height > 6ft and Weight> 70kg.  
Original Dictionary:

{'Cierra Vega': (6.2, 70), 'Alden Cantrell': (5.9, 65), 'Kierra Gentry': (6.0, 68), 'Pierre Cox': (5.8, 66)}:

Output: {'Cierra Vega': (6.2, 70)}

Q48. Write a Python program to create a dictionary grouping a sequence of key-value pairs into a dictionary of lists.

Original list: [('yellow', 1), ('blue', 2), ('yellow', 3), ('blue', 4), ('red', 1)]  
Output: {'yellow': [1, 3], 'blue': [2, 4], 'red': [1]}

Q49. A Python Dictionary contains List as a value. Write a Python program to sort all the list values given dictionary, then print the updated dictionary.

D = {'Math': [88, 89, 90], 'Physics': [92, 94, 89], 'Chemistry': [90, 87, 93]}  
Output: {'Math': [89, 90, 91], 'Physics': [87, 90, 92], 'Chemistry': [87, 90, 93]}

Q50. Write a Python program to find all keys in a dictionary that have the given value.

D = {'Theodore': 19, 'Roxanne': 20, 'Mathew': 21, 'Betty': 20}

Sample Input: 20

Expected Output: ['Roxanne', 'Betty']

Python Dictionary Comprehensions Practice Questions

Q1. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10, and the values are the squares of the keys.

Q2. Write a Python program to create a dictionary using dictionary comprehension from a given dictionary, where the new dictionary only includes items with values greater than 10. Use the dictionary: {'a': 5, 'b': 12, 'c': 7, 'd': 20}.

Q3. Write a Python program to reverse the keys and values of a given dictionary using dictionary comprehension. For example, given {'x': 1, 'y': 2, 'z': 3}, the output should be {1: 'x', 2: 'y', 3: 'z'}.

Q4. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10, and the values are 'even' or 'odd' depending on the key value.

Q5. Write a Python program to create a dictionary using dictionary comprehension that maps each word in a list to its length. Use the list: ['apple', 'banana', 'cherry', 'date'].

Q6. Write a Python program to create a dictionary using nested dictionary comprehension where the keys are numbers from 1 to 5, and each key maps to another dictionary with keys as the numbers from 1 to 3 and values as their product.

Q7. Write a Python program to count the occurrences of each character in a string using dictionary comprehension. Use the string 'mississippi'.

Q8. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 5, and the values are lists containing the multiplication table of each key from 1 to 5.

Q9. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10, and the values are the squares of the keys, but only include keys that result in an even square.

Q10. Write a Python program to create a dictionary using dictionary comprehension that maps each item in a list to its index in that list. Use the list: ['a', 'b', 'c', 'd'].

Q11. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10. If the key is even, the value should be the key divided by 2; if the key is odd, the value should be the key multiplied by 3.

Q12. Write a Python program to create a dictionary using dictionary comprehension where the keys are the characters in the string 'python', and the values are their corresponding ASCII values.

Q13. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10, and the values are categorized as 'low' if the key is less than 5, 'medium' if between 5 and 7, and 'high' if greater than 7.

Q14. Write a Python program to create a dictionary using dictionary comprehension from two lists: one containing keys['name', 'age', 'city'] and another containing values ['Alice', 25, 'New York'].

Q15. Write a Python program to create a dictionary using dictionary comprehension that flattens a nested dictionary. For example, given the nested dictionary {'a': {'x': 1}, 'b': {'y': 2}}, the output should be {'a\_x': 1, 'b\_y': 2}.

Q16. Write a Python program to create a dictionary using dictionary comprehension that includes only those key-value pairs from a given dictionary where the keys start with the letter 'a'. Use the dictionary: {'apple': 5, 'banana': 12, 'avocado': 7, 'berry': 20}.

Q17. Write a Python program to count the occurrences of each word in a sentence using dictionary comprehension. Use the sentence: 'the quick brown fox jumps over the lazy dog'.

Q18. Write a Python program to group words by their length using dictionary comprehension. Use the list: ['cat', 'dog', 'elephant', 'mouse', 'rat', 'lion']. The output should be a dictionary where the keys are lengths, and the values are lists of words of that length.

Q19. Write a Python program to create a dictionary using dictionary comprehension that extracts key-value pairs from a given dictionary where the value is a prime number. Use the dictionary: {'a': 4, 'b': 7, 'c': 10, 'd': 13}.

Q20. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 5, and the values are dictionaries that map 'square' to the square of the key and 'cube' to the cube of the key.

Ordered Dict Practice Questions

**1.** Write a Python program that creates an OrderedDict and adds some items. Print the OrderedDict contents.

**2.** Write a Python program that sorts the OrderedDict by its keys. Sort the OrderedDict by its values as well.

**3.** Write a Python program that accesses an item in the OrderedDict by its key. Check if a specified item exists in the OrderedDict as well.

**4.** Write a Python program that reverses the order of a given OrderedDict.

**5.** Write a Python program to create an OrderedDict with the following key-value pairs:  
'Laptop': 40  
'Desktop': 45  
'Mobile': 35  
'Charger': 25  
Now move the 'Desktop' key to the end of the dictionary and print the updated contents.

**6.** Write a Python program to create an OrderedDict with the following key-value pairs:  
'Laptop': 40  
'Desktop': 45  
'Mobile': 35  
'Charger': 25  
Now remove the first key-value pair and print the updated OrderedDict.

**7.** Write a Python program that creates an OrderedDict and populates it with random integer values as values and their ASCII characters as keys. Print the OrderedDict.